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ABSTRACT

This study attempted to: (1) explore the enrollment patterns, enrollment goals, and expenditure demand ratios among Presbyterian-related colleges and universities; (2) determine the relationships between resource allocations in the form of expenditure demand ratios and enrollment goals; and (3) determine relationships between expenditure demand ratios and the enrollment patterns at those institutions. The following data were collected from 65 member institutions of the Association of Presbyterian Colleges and Universities: selected institutional characteristics and enrollment goals; total student fall enrollment and enrollment by race for 5 years (1982, 1986, 1988, 1990, 1991); allocation figures for instruction, academic support, student services, and scholarships and fellowships; and total educational and general revenues for those same years. Findings included the following: expenditures on instruction tended to be 30 percent or higher at large institutions (with enrollments over 1,000 students) and less than 30 percent at smaller institutions; decreases in levels of spending on instruction were observed over the 10-year period; and levels of academic support expenditure demand ratios remained stable. Among conclusions are that institutions are focusing their resource allocations less on instruction of students and more on academic support to students, not including instruction; on student services, including student recruitment and retention programs; and on financial assistance in the form of institutional aid to students. Tables detailing the study's findings and the survey questionnaire are attached. (Contains 110 references.) (DB)

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Enrollment management: Do resource allocation decisions really make a difference?

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This paper was presented at the annual meeting of the Association for the Study of Higher Education held at the Marriott Hotel, Orlando, Florida, November 2-5, 1995. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

Introduction

Administrators in colleges and universities in the United States have difficulties estimating undergraduate enrollments, and subsequently revenue, from year to year. Becker (1991) noted that, since the 1960s, a number of scholars have estimated the demand for enrollment in higher education. The early part of the 1990s was predicted to have marked declines in student enrollments at institutions of higher education (Forrest, 1987; Solmon, 1990). However, overall student enrollments have been increasing modestly each year ("1992 Enrollment," 1994). There are other forces which impact institutional budgets besides those made by student enrollment fluctuations. The trends in sources of revenue for colleges and universities show that, particularly for public institutions, tuition needs to play a more important role as local, state, and federal resources are either having ceilings put on tax revenues or are cutting their support to higher education (Froomkin, 1990/1993; McPherson & Schapiro, 1991/1993).

In fact, during this same period, tuition has been increasing at rates that are at times double or triple the rate of inflation at both public and private institutions (Evangelauf, 1993, 1994b). The standard conclusion is that higher education institutions do not share the traditional economic assumption of minimizing costs as a goal of production (Brinkman, 1991). Hauptman (1992/1993) concluded that the financial resources which will be available to institutions of higher education will chiefly depend on the nation's overall economic growth. So long as colleges and universities continue to rely on the government at the local, state, and federal levels for funds for general operations and research projects, these institutions will be scrutinized by the general public and lawmakers who have other entities competing for limited funds. For example, public K-12 education, food programs, and health care programs also present pressing needs for increased funding to the government. Institutions must closely inspect their programs and make consistent choices in the light of increasing public expectations of accountability (Lyons, 1978). For instance, in the function of academic instruction, Hopkins (1991) concluded in his research that there is "considerable evidence" for the existence of economies of scale in institutions of higher education (p. 29).

Bryant (1990) stated that formal schooling is the most recognized way to invest in family members and human capital (p. 169). The basic premise of the human capital approach is that "variations in labor income are due, in part, to differences in labor quality in terms of the amount of human capital acquired by the workers" (Cohn, 1979, p. 28). The issue of whether higher education represents an investment or consumption has yet to be resolved (Cohn, 1979). So long as administrators hold on to the philosophy that higher education is a social investment in human capital, the public will persist in its demands for efficiency by administrators in all higher education functions, including those associated with enrollment management (Anderson, 1990/1993; Lyons, 1978).

Enrollment management is a term that has been used by some to address issues involving marketing strategies and retention programs for college students. Various approaches have been attempted to further the understanding of higher education enrollment patterns. Enrollment management studies have concentrated on such determinants as different student attributes like high school grade point average and

physical disability (Garvey, 1991/1992; Nolan, 1988; Yost, 1984), and different administrative attributes (Gosky, 1991/1992).

Other enrollment management research has examined across institutions of higher education various administrators' perceptions (Livingston, 1992/1993; Muston, 1985; Webber, 1988), institutional strategies (Elcik, 1984; Gans, 1993/1994; Marquis, 1991; Prather & Carlson, 1994; Williams Crockett, 1993), and enrollment management activities (Bond, 1993; Buffington, 1990; Cogan, 1992; Hogan, 1992; Miller, 1992; Pollock, 1987; Pollock & Wolf, 1989; Schneider, 1988/1989; Taber, 1989). Case studies of individual programs at colleges and universities have been conducted to understand enrollment issues (Barnes, 1993; Beronja & Bee, 1989; Boger, 1994; Cox, 1989; Dienhart, 1988/1989; Harkema, 1990/1991; Ingersoll Williams and Associates, Inc., 1990; Kalsbeek, 1989, 1992; Kreutner & Von Wald, 1981; Krotseng, 1989, 1992; Williams & Cox, 1991). In particular, case studies have presented marketing issues in relation to international students (Bers, Beals, & Hossler, 1990)

Once a student has made the decision to attend a particular college or university, the primary enrollment management function shifts from marketing to retention. Two primary theoretical models that comprehensively explain student attrition have concentrated on such internal factors as goal commitment and institutional commitment (Tinto, 1975), and on such external factors as family approval and friends' encouragement (Bean, 1982). A model has also been offered in an attempt to merge these two theories into one prototype to illuminate the college persistence process (Cabrera, Castañeda, Nora, & Hengstler, 1992).

Financial issues in relation to student persistence have been addressed from the standpoint of their impact on financial aid policies and parental support. The factor of students' ability to pay has received attention in several studies (Braxton, Brier, & Hossler, 1988; Cabrera, Nora, Castañeda, & Hengstler, 1990; Cabrera, Stampen, & Hansen, 1990; Cibik & Chambers, 1991; Iwai & Churchill, 1982). In addition, research has been conducted that centered on the importance of cost-benefit scales as explanations for college student attrition (Hossler, 1982; Noel, 1987; Tinto, 1982).

There have been studies completed stemming from the attrition theoretical models which have concentrated on various populations, such as American Indian students (Aitken & Falk, 1983; Padilla & Pavel, 1994), Asian students (Murray, 1991), African-American students (Adams & Smith, 1987; Oliver & Etcheverry, 1987; Thompson & Fretz, 1991), and Hispanic-American students (Hanson & Mangum, 1992; Kraemer, 1993/1994; Laughlin, 1992; Padilla & Pavel, 1994; von Destinon, 1989).

Researchers agree that the process of attracting, retaining, and matriculating students at institutions of higher education is not the responsibility of one person or even one office (Claffey & Hossler, 1986; Elcik, 1984; Hossler, 1984, 1985, 1986, 1987; Hossler & Bean, 1990; Kemerer, Baldridge, & Green, 1982; Mabry, 1987). Rather, enrollment management is a process that requires persons in charge of the following functions to work in a collaborative manner: student marketing and recruitment, financial aid, academic

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advising, career planning and placement, learning assistance centers, libraries, computing services, orientation, student services, and faculty development (Hossler & Bean, 1990, p. 7).

The crossing of departmental lines in strategic enrollment management practices causes problems for chief administrators at colleges and universities who are attempting to increase efficiency in managing the enrollments at their institutions. Specifically, problems arise in determining the expenditures incurred in relation to the revenue earned by the various units working to attract and retain students. Inconsistencies in accounting, duplication of services, and differences in philosophies are a few of the issues one encounters while attempting to measure the financial burden of enrollment management (G. L. Smith, personal communication, November 15, 1993).

While chief administrative officers have an abundance of internal records delineating institutional expenditures, few have begun endeavors to better analyze costs within their institutions of higher learning (Adams, Hankins, & Schroeder, 1978; Hoenack, 1991). Chabotar (1991) noted that expenditure demand ratios provide a more reliable indication of institutional priorities than any strategic plan, speech, or press release (p. 198). An expenditure demand ratio expresses the relationship between an expenditure in one of the institutional functional categories and total educational and general revenues.

In relation to issues surrounding enrollment management, there are certain expenditure demand ratios which are most relevant. The instruction demand ratio is important because of concerns that have been raised that institutions may be allocating resources to direct enrollment management functions at the expense of instruction (Bean & Hossler, 1990, p. 302). The academic support demand ratio is pertinent because it includes expenditures in such areas as faculty development, learning assistance centers, libraries, and academic computing services. The student services demand ratio is applicable to this discussion because it includes expenditures on admissions (including marketing and recruitment programs), student services, financial aid, academic advising, career planning and placement, and orientation. Finally, the scholarships and fellowships demand ratio is relevant because it includes the expenditures for institutional financial aid.

Statement of the Problem

Previous studies on enrollment management issues were useful to the extent that the analyses proved that attracting, retaining, and matriculating students in higher education is a dynamic process which will be different on every campus. However, none of them addressed the implications of enrollment goals on institutional budgets.

Models that have been advanced to explain and predict student attrition and retention in college were valuable for research on student participation in higher education. Yet the models and subsequent studies failed to discuss the relationships between resource allocations by institutions and student enrollment patterns.

The literature on higher education budget and finance provides the necessary practical foundation

and historical evidence for understanding the economics of education. A deficiency arises in that little has been written in an attempt to determine whether or to what degree institutional goals affect the resource allocation decisions made by college and university administrators (James, 1991; Tuckman & Chang, 1991).

Purposes of the Study

The purposes of this study were to (1) explore the enrollment patterns, enrollment goals, and expenditure demand ratios among Presbyterian-related colleges and universities; (2) determine the relationships between resource allocations in the form of expenditure demand ratios and enrollment goals; and (3) determine the relationships between expenditure demand ratios and the enrollment patterns at those institutions.

Importance of the Study

The two goals of enrollment management activities are to (1) exercise more control over the characteristics of the student body, and (2) control the size of the student body (Hossler & Bean, 1990, p. 5). In the process of attracting and retaining students, however, some institutions are spending increasing proportions of institutional funds on marketing, recruitment, and financial aid, while decreasing the proportion of funds spent on instruction (Bean & Hossler, 1990, p. 302). For this reason, it was important to explore the ratio of resources which were being allocated to instruction, academic support, student services, and scholarships and fellowships in relation to enrollment goals and enrollment patterns.

While Bowen (1980) discussed how resource allocation varied by institutional affluence, little research has been completed about how institutional goals affect the resource allocation decisions made by universities (Tuckman & Chang, 1991). An investigation of the resource allocation practices in higher education was needed to try to add to the literature base. The use of demand ratios presented a succinct reflection of expenditures in relation to institutional enrollment goals and enrollment size (Peat, Marwick, Mitchell, & Co., 1982).

Demographic changes in the population of the United States are resulting in an increase in the ethnic diversity of traditional college-age students participating in higher education (Solmon, 1989). Future enrollment patterns can be viewed as a crisis or an opportunity for college administrators. It was important to examine the associations between resource allocation decisions and enrollment patterns of the various racial and ethnic student groups in order to determine the natures of their relationships.

Definitions

The National Association of College and University Business Officers (NACUBO) define "enrollment management" as a process that influences the size, shape, and characteristics of an institution's student body through coordinated efforts to determine an institution's recruitment, admissions, pricing, academic advising, and student retention policies (Dunn, 1992, p. 62).

"Total educational and general revenues" are all educational and general revenues, including: (a) tuition and fees; (b) governmental revenues; (c) private gifts, grants, and contracts; (d) endowment income;

(e) sales and services of educational activities; and (f) other revenues. Sales and services of auxiliary enterprises, intercollegiate athletics, hospitals, and independent operations, Pell Grants (BEOG), and state scholarships are excluded (Peat, Marwick, Mitchell, & Co., 1982, p. 19).

"Instruction expenditures" are composed of all instructional expenditures of the institution, including those for undergraduate, graduate, and professional schools; as well as for evening, extension, and continuing education programs. Also included are departmental research not separately budgeted and organized activities related to educational departments. Instructional expenditures encompass both credit and noncredit courses; occupational, vocational, and remedial instruction; the instructional departments' portion of work-study programs; and staff benefits. Excluded are academic administration when administration is the primary assignment, faculty development, and intercollegiate athletic expenditures (p. 23).

"Academic support expenditures" are composed of all expenditures that provide a support service to the instructional, research, and public service functions. It includes libraries, audiovisual facilities, museums, galleries, academic computing support, academic administration, faculty development, demonstration schools, and medical clinics when the hospital is independent of the institution. Also included is the academic support portion of work-study programs and staff benefits (p. 23).

"Student services expenditures" are comprised of all expenditures for functions that contribute to the health and well-being of the student: admissions and registrar's offices, offices of the deans of student affairs (men's and women's), financial aid offices, medical services operated for students (unless they are self-supporting), any activities that contribute to the student's cultural and social development (such as cultural events, newspapers, yearbooks, intramural athletics), day care for students' children, and counseling and guidance. Also included are the student services portion of work-study programs and staff benefits. Commencement and intercollegiate athletics are excluded (p. 24).

"Scholarships and fellowships expenditures" include all scholarships and fellowships granted to students in which the institution selects the recipients. It includes Federal Supplemental Educational Opportunity Grants (SEOG), Law Enforcement Entitlement Programs (LEEP), and athletic scholarships. Federal College Work-Study Programs (CW-SP), Pell Grants, state scholarships, National Direct Student Loans (NDSL) matching funds, and tuition remissions to faculty and staff are not included (p. 24).

"Goals" are defined in the general sense as ends to be reached more immediately (Tuckman & Chang, 1991). The goals being referred to in this study encompass a set of specific enrollment goals.

Research Design

This was a quantitative descriptive research project based on an *ex post facto* investigation. A series of one-way analysis of variance (ANOVA) and chi-square of independence for two-way designs was employed to test whether the differences of means and patterns of institutional practices among the schools on each of the dependent variables (instruction ratio, academic support ratio, student services ratio, and

scholarships and fellowships ratio) were likely to have occurred by chance for each of the independent variables (size goal, diversity goal, international goal, total enrollment, American Indian enrollment, Asian-American enrollment, Hispanic-American enrollment, African-American enrollment, white enrollment, and international enrollment).

Dependent Variables

Each of the four dependent variables was a continuous variable. The dependent variables were collected for each institution in the sample for the six fiscal years of 1982/83, 1986/87, 1987/88, 1988/89, 1989/90, and 1990/1991. The variables were in the form of percentages, calculated for each institution for each year by dividing the allocation for the respective expenditure category by the total educational and general revenues of that institution for the same year. The dependent variables were labeled (1) instruction ratio, (2) academic support ratio, (3) student services ratio, and (4) scholarships and fellowships ratio.

Independent Variables

Three of the independent variables were collected from each institution in the sample from the questionnaire mailed to chief admissions officers regarding their enrollment goals for the class of new students entering in Fa 993. These were discrete variables, taking on a value ranging from 1 to 3. In the variable that represents size enrollment goals, 1 stands for "smaller," 2 stands for "about same," and 3 stands for "larger." In the variable that represents racial/ethnic diversity enrollment goals, 1 stands for "less," 2 stands for "about same," and 3 stands for "more." In the variable that represents international students enrollment goals, 1 stands for "fewer," 2 stands for "about same," and 3 stands for "more."

The remaining seven independent variables were continuous variables. These variables were collected from each institution in the sample for the five years of Fall 1982, 1986, 1988, 1990, and 1991. The six student enrollment by race variables were in the form of percentages; these were the proportions calculated for each institution for each year by dividing the number of students enrolled for the respective category by the total enrollment of that institution for the same year.

The independent variables were labeled (1) size goal, (2) diversity goal, (3) international goal, (4) total enrollment, (5) American Indian enrollment, (6) Asian-American enrollment, (7) Hispanic-American enrollment, (8) African-American enrollment, (9) white enrollment, and (10) international student enrollment.

Extraneous Variables

Internal validity of the research design might have been threatened due to a couple of extraneous variables. Historical extraneous variables may have been present during the course of the study and distorted the results. Extraneous variables that are external to the institutions which were present during the course of the study that may have distorted the results include whether the economic status of the families in the target market of potential students had changed. If the economic status improved, then enrollment patterns may reflect an increase which was not related to the expenditure demand ratios being measured. Similarly, if the economic status worsened, then enrollment patterns may reflect a decline which

was not related to the expenditure demand ratios being measured.

Maturation extraneous variables might also have been present during the course of the study and produced misleading results. One example is that not every institution in the sample population was a member of the denominational association during all of the years that financial data and enrollment data were collected. Another example of maturation is that the enrollment goals given by the responding chief institutional admissions officers in Summer 1994 may have been inaccurate reflections of the goals in operation from 1982-1991, the beginning and ending years included in the study for the financial ratios (dependent variables). The tests for significant difference between the ratios of instruction, academic support, student services, and scholarships and fellowships and each of the three independent variables of enrollment goals might have been compromised.

Statistical Measurements

The reliability and validity of the questions being used in the Enrollment Goals Survey to measure the enrollment goals of the sample population were assumed to be high because they had been pretested at over 600 institutions nationwide, including 19 institutions from this study's population (Williams Crockett, 1993).

The validity of each financial figure was assumed to be high because the financial data came from specific line items on the annual reports as defined by the Financial Accounting Standards Board (FASB).

Research Questions

Three research questions were asked to explore the relationship between the four expenditure demand ratios and the three enrollment goals, the second question in the purpose of the study. They included:

1. What is the relationship between the enrollment goal regarding the size of student body and the individual expenditure demand ratios (instruction, academic support, student services, and scholarships and fellowships)?

2. What is the relationship between the enrollment goal regarding racial/ethnic diversity of the student body and the individual expenditure demand ratios (instruction, academic support, student services, and scholarships and fellowships)?

3. What is the relationship between the enrollment goal regarding international student representation in the student body and the individual expenditure demand ratios (instruction, academic support, student services, and scholarships and fellowships)?

Twelve separate analysis of variance tests were done to test whether each enrollment goal was related to the level of the instruction, academic support, student services, and scholarships and fellowships expenditure demand ratios.

The third purpose of the study focused on the relationships between resource allocations in the form of the expenditure demand ratios and the enrollment patterns. The four research questions that pertain to

this inquiry included:

1. What is the relationship between (1) total student fall enrollment and (2) each of the student fall enrollments by race (American Indian, Asian-American, Hispanic-American, African-American, white, and international students) and the instruction expenditure demand ratio?

2. What is the relationship between (1) total student fall enrollment and (2) each of the student fall enrollments by race (American Indian, Asian-American, Hispanic-American, African-American, white, and international students) and the academic support expenditure demand ratio?

3. What is the relationship between (1) total student fall enrollment and (2) each of the student fall enrollments by race (American Indian, Asian-American, Hispanic-American, African-American, white, and international students) and the student services expenditure demand ratio?

4. What is the relationship between (1) total student fall enrollment and (2) each of the student fall enrollments by race (American Indian, Asian-American, Hispanic-American, African-American, white, and international students) and the scholarships and fellowships expenditure demand ratio?

Twenty-eight separate chi-square tests for a two-way design were done to test whether total student fall enrollment and student fall enrollments by race were related to the level of each expenditure demand ratio. To meet the assumption of independence for the chi-square tests, the averages were computed for each institution for (1) each enrollment category over the five years of data, and (2) the expenditure demand ratio over the six years of data.

For a trend analysis within each enrollment category, the mean values for all schools for the level of each expenditure demand ratio were computed for each of the following academic years: 1982/83, 1986/87, 1988/89, and 1990/91.

Selection of Subjects

The population was all Presbyterian-related colleges and universities across the United States. Religiously affiliated institutions of higher education are represented in each sector of the Carnegie Foundation for the Advancement of Teaching classification system (Guthrie, 1992). Church-related colleges and universities comprise less than 10 percent of the total undergraduate enrollment (p. 5). In particular, of the 720 church-related institutions, Presbyterian colleges and universities represent (a) 9.6 percent of the total, (b) 3.5 percent of the research and doctorate granting universities, (c) 5.5 percent of the comprehensive colleges, (d) 12.9 percent of the liberal arts colleges, and (e) 6.6 percent of two-year institutions (p. 6).

This population consisted of 68 member institutions of the Association of Presbyterian Colleges and Universities (APCU) as of Fall 1993. The association's purpose is "to recognize the common Presbyterian heritage of its member institutions and their mission to serve the Church by providing their students a quality education grounded in the values of the Reformed tradition" (APCU, 1993).

The sample population was a purposive sample of 65 institutions. The reason that three institutions

were dropped and these particular 65 institutions composed the sample population was that these institutions participated in Minter's (1986) study of management ratios for colleges and universities. This nation-wide study of 3,100 institutions of higher education includes ratios of (1) revenue sources related to total expenditures, (2) expenditures for major operating functions related to total revenues, and (3) enrollment FTE categories related to total FTE enrollment (p. 5). The financial ratios show the profile relationships for each institution in fiscal 1983 dollars, and enrollment ratios of Fall 1983 enrollments.

Procedures

The following data were collected from each institution in the sample population: (1) selected institutional characteristics and enrollment goals for the class of new students entering Fall 1993, as described at the time the respondent completed the Enrollment Goals Survey in Summer 1994; (2) total student fall enrollment and student fall enrollments by race for American Indian, Asian-American, Hispanic-American, African-American, white, and international students as published by the U.S. Department of Education for Fall 1982, 1986, 1988, 1990, and 1991; and (3) allocation figures for instruction, academic support, student services, and scholarships and fellowships from the expenditures and mandatory transfers section, and the total educational and general revenues amounts as found in the statement of current funds revenues, expenditures, and other changes from annual financial reports for fiscal years 1982/83, 1986/87, 1987/88, 1988/89, 1989/90, and 1990/91.

In order to determine the values for each institution for the other seven independent variables, fall total enrollments and enrollments by race were taken from published data that were compiled by the U.S. Department of Education for the years 1982, 1986, 1988, 1990, and 1991.

The Enrollment Goals Survey was mailed to the chief admissions officers at the institutions in the sample population in May, 1994. The questions that were used in this measure were taken with written permission directly from several questions on the Williams Crockett (1993) Fall 1992 National Enrollment Management Survey Report. A cover letter explaining the study was included with the questionnaire, along with a stamped, self-addressed return envelope. One follow-up notice was sent to those admissions officers who did not return their copies of the questionnaire by June 1, 1994. Telephone calls were made to the final twelve schools who had not returned surveys by June 17, 1994, in order to obtain specific names of the chief admissions officers and to mail a second copy of the survey to these persons.

Total student enrollments and student enrollments by race were collected for Fall 1982, 1986, 1988, 1990, and 1991 from U.S. Department of Education data as published in The Chronicle of Higher Education ("Minority enrollments," 1984; "1986 enrollment," 1988; "1988 enrollment," 1990; "1990 enrollment," 1992; "1991 enrollment," 1993).

The financial ratios were collected for fiscal year 1982/83 from the Minter (1986) study. Financial data was purchased from Minter Associates for fiscal years 1986/87, 1987/88, 1988/89, 1989/90, and 1990/91, in order to compute the financial ratios for the respective fiscal years.

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Limitations of the Study

Differential selection could have been a problem because the sample was drawn solely from APCU member institutions rather than being randomly selected from all institutions of higher education. Means to counteract this limitation included the fact that the sample population was distributed among 31 states and included coeducational four-year institutions (54), women's four-year institutions (3), a men's four-year institution (1), a coeducational two-year institution (1), an historically black two-year institution (1), a women's two-year institution (1), and historically black four-year institutions (4).

In addition, under the Carnegie Foundation reclassification system (Evangelauf, 1994a), the sample included a doctoral university II (1), master's (comprehensive) universities and colleges I (4), master's (comprehensive) universities and colleges II (4), baccalaureate (liberal arts) colleges I (23), baccalaureate (liberal arts) colleges II (30), and associate of arts colleges (3).

Findings

Between Fall 1982 and Fall 1991, the mean values of the enrollment categories in the 55 schools participating in this study showed increases for the following categories: total enrollment, American Indian enrollment, Asian-American enrollment, Hispanic-American enrollment, and African-American enrollment (see Tables 1 thru 5). White enrollment and international student enrollment on the campuses in this sample decreased as proportions of total enrollment from Fall 1982 to Fall 1991 (see Tables 6 and 7). The enrollment goals for the majority of these institutions regarding the class of new students entering Fall 1993 was that (a) size of student body was to become larger (54.5%), (b) racial/ethnic diversity of the student body was to stay about the same (54%), and (c) international student representation in the student body was to stay about the same (65.3%) (see Table 8). The mean value for instruction expenditure demand ratios experienced a 15 percent decrease in less than five years between 1982/83 and 1986/87, with a four percent decrease during the following four-year period (see Table 9). While the mean values for academic support expenditure demand ratios and student services expenditure demand ratios both increased slightly between 1982/83 and 1990/91, there was a 34% increase in the mean values for scholarships and fellowships expenditure demand ratios during this time period (see Tables 10 thru 12).

The data collected to discover the relationships between resource allocations in the form of expenditure demand ratios and the enrollment goals of the institutions did not have equal sample sizes in each cell, thus violating the assumption of homogeneity of variance (see Tables 13 thru 15). Subsequently, none of the hypotheses could be rejected. However, had the tests been valid, the finding that the average scholarships and fellowships expenditure demand ratio was above 30% for schools with the enrollment goal of less or about same racial/ethnic diversity on campus, compared with an average ratio of about 22% for schools with the enrollment goal of more racial/ethnic diversity on campus would have been statistically significant ($\rho<.05$).

In the analysis performed to determine the relationships between the individual expenditure demand

ratios and the enrollment patterns at those institutions, a couple of significant findings arose. First, large schools tend to spend over 30% on instruction as a proportion of total educational and general revenues, and small schools tend to spend less than 30% on instruction ($\rho<.005$) (see Table 16). The trend analysis revealed, however, that (a) in 1982/83, both sizes of schools had average instruction expenditure demand ratios above 30%; and (b) in 1990/91, both sizes of schools had average instruction expenditure demand ratios below 30%. Second, the propensity to spend from 0-7% on academic support as a percentage of total educational and general revenues is greater at small schools than at large schools ($\rho<.05$) (see Table 17). The trend analysis revealed, however, that the average for all schools in both categories had academic support expenditure demand ratios that never went above 7.0% for the fiscal years 1982/83, 1986/87, 1988/89, and 1990/91.

Discussion of Findings

Total enrollment at the Presbyterian-related institutions increased 17 percent between Fall 1982 and Fall 1991, compared with a 12 percent increase in total enrollment nationwide ("Almanac, 1994, p. 15). While the enrollments by race categories had higher percentage increases from Fall 1982 to Fall 1991 at the Presbyterian-related institutions in the study compared with national figures, the ending racial values as proportions of total enrollment were lower at the schools in the study than the national proportions. American Indian enrollment at the institutions in the study increased 88 percent to .32%, compared with a 5 percent increase to .70% in this racial category nationwide. Asian-American enrollment at the institutions in the study increased 124 percent to 1.3%, compared with a 33 percent increase to 4% in this racial category nationwide. Hispanic-American enrollment at the institutions in the study increased 64 percent to 1.8%, compared with a 35 percent increase to 6% in this racial category nationwide. A change in this pattern was seen in the African-American enrollment category: at the institutions in the study, African-American enrollment increased 11 percent to 12.3%, compared with a 2 percent increase to 9% nationwide. White enrollment, as a proportion of total enrollment, decreased both at the institutions in the study and nationwide; however, a higher proportion of enrollment is white (81.5) at the institutions in the study compared with institutions nationwide (78%). The proportion of total enrollment that included international students was identical in Fall 1991 at 2.84% for both the schools in the study and nationwide.

The relationship between enrollment goals and resource allocation decisions remains indefinite. Yet an analysis of the enrollment goal regarding racial/ethnic diversity for entering students in Fall 1993 by average scholarships and fellowships expenditure demand ratios for the schools in this study showed that, regardless of goal, increases were experienced in the levels of the scholarships and fellowships expenditure demand ratios as percentages of total educational and general revenues. The intentional distribution of financial aid to increase minority participation in higher education is a sensitive issue, ranging from claims of violation of white students' rights (Zapler, 1994); to charges by the Justice Department of colleges practicing illegal price discounting (Bowen & Breneman, 1993); to cries for restoration of college access to

minority and low income students (Orfield, 1992). Under the Education Department's guidelines, colleges may use minority scholarships either to "remedy past discrimination or to promote diversity on campus" (Jaschik, 1994, p. A25).

The study found that total enrollment was related to the instruction expenditure demand ratio. Specifically, schools over 1000 tend to spend over 30% on instruction as a proportion of total educational and general revenues, and schools with total enrollments under 1000 tend to spend less than 30% on instruction ($\rho<.005$). One reason for this difference may be based on the types of curriculum available for students of which to choose majors between during the academic years of 1982/83 and 1990/91. By the Fall of 1993, however, all schools (except one) with four-year undergraduate degree programs participating in the study had majors available in the humanities, the natural sciences and the hard sciences. In fact, the one institution that did not offer majors in the hard sciences showed an increase in its instruction ratio between 1982/83 and 1990/91.

Total enrollment was also related to the academic support expenditure demand ratio in this study. The propensity to spend from 0-7% on academic support as a percentage of total educational and general revenues is greater at schools with total enrollments under 1000 than at schools with total enrollments over 1000 ($\rho<.05$). While neither size school had average academic support ratios above 7% during the years in the study, schools with less than 83% white student enrollment (i.e., a racially diverse student population) had average academic support expenditure demand ratios that were above 7.0% for every year except 1982/83.

Implications

That this study of Presbyterian-related colleges and universities found that large institutions (i.e., schools with total enrollments over 1000 students) tend to spend 30% and higher on instruction has implications regarding enrollment management. Smaller institutions that tend to spend less than 30% on instruction may not be encouraging their faculty members with adequate financial support to stay involved with students both in the classroom and out of the classroom.

Faculty play a critical role in the recruitment and retention of students (Hossler & Bean, 1990). An important element in student retention efforts is the involvement of faculty members who sustain meaningful and positive interactions between themselves and students (Thomas, 1990). However, Shipps (1992) found that:

> The hiring and retaining of quality faculty also depend on decisions about expenditures ... On average, the amounts applied to instruction as a percentage of the total budget are 5 to 10 percent below the aggregate in institutions with missions that are not church-related. (p. 30)

This statement is true not only for church-related institutions. The amount allocated to instruction at all private institutions was 26.5% of the total budget for 1991/92, compared with all public institutions spending 33.2% of the total budget on instruction ("Almanac," 1994, p. 37).

The influence of the enrollment goal regarding more racial/ethnic diversity on the scholarships and fellowships expenditure demand ratio has its own implications on enrollment management issues. First, schools with the enrollment goal of increased diversity for entering students Fall 1993 who on average spent 22.2% on scholarships and fellowships did experience increases in both the racial/ethnic diversity as measured by (a) percent of total enrollment, and (b) number of racial categories. Yet, it is also important to note that the majority of these schools also increased their level of spending in this category as a percent of total educational and general revenues between not only 1982/83 and 1990/91, but also between 1989/90 and 1990/91. Increases in scholarships and fellowships as a response to the goal of increased racial diversity is being seen in other schools across the nation. For example, the University of Missouri-Columbia tripled its incoming African American student enrollment for the 1994-95 academic year, largely due to scholarship awards (Gose, 1994).

The issue of retention of minority students is related to the goal of increased diversity and its influence on the level of scholarships and fellowships. Enrollment management pertains to not only attracting new students, but also retaining current students. However, any changes in an institution's scholarships and fellowships demand ratio does not reflect which students' awards are being affected. If the awards were significant in increasing racial diversity of incoming students, then, for retention purposes, it may follow that the awards had similar effects on returning minority students.

It is important to remember that components of effective minority retention programs include more than reasonable financial aid packages (Brown, 1991; Williams, 1993). Brown (1991) included such elements as an attractive multicultural environment on campus, sensitive faculty, maintenance of communication with high school guidance counselors, a comfortable social climate, and a commitment by the governing board to increased racial/ethnic diversity of the student body.

Wilcox (1991) found that, while financial aid had a significant effect on student persistence for private institutions, many of these schools saw student aid as a major institutional expense. Scholarships and fellowships, as well as all financial aid, are viewed by an increasing number of enrollment managers for their strategic value at increasing the number and mix of students (p. 48). However, this study of Presbyterian-related colleges and universities differs from Wilcox's study in that it did not find that the scholarships and fellowships demand ratio, nor any of the other three demand ratios, was influenced to a statistically significant degree by the enrollment goals regarding (1) the size of student body, and (2) international student representation in the student body. A reason that the level of the scholarships and fellowships demand ratios in particular were not significantly influenced by these goals may be that the use of no-need scholarships is not always cost-effective at prestigious private colleges (Zelenak & Cockriel, 1986). An explanation for this includes that students who tend to select these colleges have, in the past, indicated that financial concerns are not major factors governing their choice of which institution to attend (p. 25).

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There is also an implication for enrollment management from this study's finding that the propensity to spend from 0-7% on academic support services as a proportion of total educational and general revenues is greater at small institutions than at large institutions. Because academic support expenditures include such services as libraries, audiovisual services, academic computing support, and academic administration, institutions may have retention problems if their students are not provided adequate academic support services (Bean, 1990). In fact, one of the suggested organizational activities to enhance student retention is to provide meaningful academic support services. Yet, between 1982/83 and 1990/91, the majority of institutions with total enrollments under 1000 in this study experienced a decrease in their academic support ratios. While the level of the demand ratio may not denote the substance of the services provided, it is important that small institutions trying to increase student retention realize the importance of and financially preserve the academic support area.

Besides the administrators and staff members included in the academic support areas, student affairs professionals play important roles in institutional enrollment management strategies (Bergman, 1991). While the majority of all schools in this study spent 10% or greater on student services expenditures as a proportion of total educational and general revenues, no statistically significant findings emerged involving the student services demand ratio being influenced by any of the independent variables. Particularly for residential church-related colleges and universities, there is a deliberate influencing of students' lives by fostering a sense of campus community and personal development which affects student recruitment and retention (De Jong, 1992). It may be that the nature and combination of the various services within this variable are more significant to issues of enrollment management than the level of spending in relation to enrollment patterns or enrollment goals.

Conclusions

Expenditures on instruction, as a percentage of total educational and general revenues, are related to total enrollment to a statistically significant extent. Decreases in levels of spending as measured by this ratio have been experienced by all types of institutions in this study of Presbyterian-related colleges and universities between 1982/83 and 1990/91. Levels that began on average above 30% were then seen to be on average below 30% less than ten years later in 1990/91.

Clearly, institutions of higher education are placing emphasis on retaining and matriculating students. For example, levels of academic support expenditure demand ratios, although dipping at times, have remained relatively stable during the years included in this study. Second, a majority of institutional categories increased average student services expenditure demand ratios over this ten year period. Finally, levels of scholarships and fellowships expenditure demand ratios have been increasing and were found to be on average above 25% by 1990/91. The conclusion is that institutions are focusing their resource allocations less on instruction of students and more on (a) academic support to students, not including instruction; (b) student services, including student recruitment and retention programs; and (c) financial

assistance in the form of institutional aid to students.

These decisions regarding resource allocations in Presbyterian-related colleges and universities show the tension institutions nationwide are facing in light of public demands for schools to place high emphasis on teaching while at the same time providing financial and developmental assistance to students. The fear of undermining of the basic functions of higher education voiced by Bean and Hossler (1990) for institutions serious about implementing strategic enrollment management appears to be manifesting itself. That is, the proportion of institutional funds allocated to instruction is declining while the proportion allocated for such items as institutional financial aid and student services are on the rise.

Recommendations for Further Study

From this study, differences were found in levels of spending on instruction between institutions with total enrollment of over 1000 students and institutions with total enrollments under 1000 students. Therefore, I recommend that research be conducted to determine whether the instruction expenditure demand ratio is an expression of differences in teaching practices at institutions of different sizes. For instance, is the level of financial support to the faculty at different sizes of schools correlated to student outcomes (e.g., success of content learning, matriculation rates, etc.).

The trend analyses showed that allocations to instruction as a proportion of total educational and general revenues have been decreasing during the years included in this study. I recommend that research be conducted to determine whether declining instruction expenditure demand ratios equates to students receiving lower quality experiences in classrooms. For example, (a) have faculty-to-student ratios changed in the classroom which represent over-crowding, or economies of scale; (b) is there a change in the frequency of teaching assistants being used in place of faculty in the classroom; or (c) is there a change in the amount of time faculty allocate, as a proportion of the number students in the classroom, for office hours.

This study found that the propensity to spend from 0-7% on academic support is greater at small schools than at large schools. Therefore, I recommend that research be conducted to determine whether some services of academic support are being neglected at the expense of other academic support services at colleges with total enrollments under 1000 students. For instance, are the necessary funds available for (a) periodical subscriptions to be renewed, (b) purchasing of new books for the library, (c) the library to remain open on evenings and weekends, (d) purchasing and maintenance of audiovisual equipment, (e) new holdings in museums and galleries, (f) increasing the number of academic computing facilities on campus, and (g) innovative faculty development programs and resources.

Table 1
Summary of Enrollment Patterns: Total Enrollment

Mean computed from:	N	Mean
Average values over all years 1982-91	55	1166
Fall 1982	55	1067
Fall 1986	55	1088
Fall 1988	52	1187
Fall 1990	54	1248
Fall 1991	55	1250

Table 2
Summary of Enrollment Patterns: American Indian Enrollment

Mean computed from:	N	Mean
Average values over all years 1982-91	55	.26%
Fall 1982	55	.17%
Fall 1986	55	.26%
Fall 1988	52	.25%
Fall 1990	54	.27%
Fall 1991	55	.32%

Table 3
Summary of Enrollment Patterns: Asian-American Enrollment

Mean computed from:	N	Mean
Average values over all years 1982-91	55	1.03%
Fall 1982	55	.58%
Fall 1986	55	.79%
Fall 1988	52	1.1%
Fall 1990	54	1.3%
Fall 1991	55	1.3%

Table 4 Summary of Enrollment Patterns: Hispanic-American Enrollment		
Mean computed from:	N	Mean
Average values over all years 1982-91	55	1.37%
Fall 1982	55	1.1%
Fall 1986	55	1.2%
Fall 1988	52	1.2%
Fall 1990	54	1.5%
Fall 1991	55	1.8%

Table 5 Summary of Enrollment Patterns: African-American Enrollment		
Mean computed from:	N	Mean
Average values over all years 1982-91	55	11.62%
Fall 1982	55	11.1%
Fall 1986	55	11.2%
Fall 1988	52	12.2%
Fall 1990	54	11.9%
Fall 1991	55	12.3%

Table 6 Summary of Enrollment Patterns: White Enrollment		
Mean computed from:	N	Mean
Average values over all years 1982-91	55	82.97%
Fall 1982	55	84.0%
Fall 1986	55	83.7%
Fall 1988	52	82.7%
Fall 1990	54	82.3%
Fall 1991	55	81.5%

Table 7
Summary of Enrollment Patterns: International Enrollment

Mean computed from:	N	Mean
Average values over all years 1982-91	55	2.73%
Fall 1982	55	2.98%
Fall 1986	55	2.78%
Fall 1988	52	2.40%
Fall 1990	54	2.70%
Fall 1991	55	2.84%

Table 8
Summary of Enrollment Goals

Goal	f	%
Size Goal		
Smaller	5	9.1%
About Same	20	36.4%
Larger	30	54.5%
N = 55		
Racial/Ethnic Diversity Goal		
Less	2	4%
About Same	27	54%
More	21	42%
N = 50		
International Goal		
Fewer	1	2%
About Same	32	65.3%
More	16	32.7%
N = 49		

Table 9
Summary of Expenditure Demand Ratios: Instruction

Mean computed from:	N	Mean
Average values over all years 1982-91	55	29.7%
Fiscal Year 1982/83	54	34.7%
Fiscal Year 1986/87	55	29.6%
Fiscal Year 1987/88	55	29.1%
Fiscal Year 1988/89	55	28.4%
Fiscal Year 1989/90	54	28.3%
Fiscal Year 1990/91	54	28.4%

Table 10
Summary of Expenditure Demand Ratios: Academic Support

Mean computed from:	N	Mean
Average values over all years 1982-91	55	6.43%
Fiscal Year 1982/83	54	6.65%
Fiscal Year 1986/87	55	6.40%
Fiscal Year 1987/88	55	6.29%
Fiscal Year 1988/89	55	6.07%
Fiscal Year 1989/90	54	6.37%
Fiscal Year 1990/91	54	6.69%

Table 11
Summary of Expenditure Demand Ratios: Student Services

Mean computed from:	N	Mean
Average values over all years 1982-91	55	11.7%
Fiscal Year 1982/83	54	11.6%
Fiscal Year 1986/87	55	11.9%
Fiscal Year 1987/88	55	11.7%
Fiscal Year 1988/89	55	11.6%
Fiscal Year 1989/90	54	11.5%
Fiscal Year 1990/91	54	11.9%

Table 12 Summary of Expenditure Demand Ratios: Scholarships & Fellowships		
Mean computed from:	N	Mean
Average values over all years 1982-91	55	24%
Fiscal Year 1982/83	54	19.9%
Fiscal Year 1986/87	55	21.7%
Fiscal Year 1987/88	55	24.7%
Fiscal Year 1988/89	55	25.3%
Fiscal Year 1989/90	54	25.8%
Fiscal Year 1990/91	54	26.7%

Table 13 Summary of Expenditure Ratios by Size Goal*		
Ratio for 1990/91	Smaller-Same N=25 M	Larger N=29 M
Instruction	28.8%	28.1%
Academic Support	7.4%	6.1%
Student Services	11.8%	12%
Scholarships & Fellowships	26.8%	26.6%

* N = 54 (one school did not have ratio data for 1990/91)

Table 14 Summary of Expenditure Ratios by Diversity Goal*		
Ratio for 1990/91	Less-Same N=21 M	More N=28 M
Instruction	30.5%	27.6%
Academic Support	6.7%	7.0%
Student Services	12%	12.6%
Scholarships & Fellowships	30.1%	22.2%

* N = 49 (one school did not have ratio data for 1990/91)

Table 15
Summary of Expenditure Ratios by International Goal*

Ratio for 1990/91	Fewer-Same N=32 M	More N=16 M
Instruction	29.3%	28.7%
Academic Support	6.8%	5.9%
Student Services	12.3%	11.5%
Scholarships & Fellowships	25.4%	26.4%

* N = 48 (one school did not have ratio data for 1990/91)

Table 16
Summary of Instruction Ratio by Total Enrollment

frequency row percent	Instruction Ratio		Mean Ratio Level by Year			
Total Enrollment	< 30%	=>30%	82/83 M	86/87 M	88/89 M	90/91 M
< 1000	20 71	8 29	32.3%	26.6%	28.7%	27.4%
=> 1000	8 30	19 70	38.3%	33.2%	28.1%	29.3%
Total	28 51	27 49				

$\chi^2 = 8.010$, $\chi^2_{critical(.005,1)} = 7.879$

Table 17
Summary of Academic Support Ratio by Total Enrollment

frequency row percent	Academic Support Ratio		Mean Ratio Level by Year			
Total Enrollment	<= 7%	> 7%	82/83 M	86/87 M	88/89 M	90/91 M
< 1000	25 89	3 11	6.7%	5.9%	6.5%	7.0%
=> 1000	16 59	11 41	6.6%	7.0%	5.9%	6.4%
Total	41 75	14 25				

$\chi^2 = 5.044$, $\chi^2_{critical(.05,1)} = 3.842$

ENROLLMENT GOALS SURVEY[1]

INSTITUTIONAL CHARACTERISTICS
Circle the number preceding all appropriate responses.

1. Type of institution

   1. Two-year college
   2. Four-year college

2. Student body composition

   1. Co-educational
   2. All women
   3. All men

3. Student body primarily:

   1. Residential
   2. Commuter

4. Region

   1. Middle States (DE, DC, MD, NJ, NY, PA)
   2. South (AL, FL, GA, KY, LA, MS, NC, SC, TN, VA)
   3. Midwest (IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WV, WI)
   4. Southwest (AR, NM, OK, TX)
   5. West (AK, AZ, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY)

5. Admissions selectivity

   1. Open (All high school graduates accepted to limit of capacity)
   2. Liberal (Some freshmen from lower half of high school graduating class)
   3. Traditional (Majority of accepted freshmen in top 50 percent of high school graduating class)
   4. Selective (Majority of accepted freshmen in top 25 percent of high school graduating class)
   5. Highly Selective (Majority of accepted freshmen in top 10 percent of high school graduating class)

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ENROLLMENT GOALS

6. What were your enrollment goals for the class of new students entering in fall 1993? (Circle one response on each line in the following table.) If your did not have a goal in a specific category, please leave it blank.

Category	Goal		
1. Size	Smaller	About same	Larger
2. Racial/ethnic diversity	Less	About same	More
3. International students	Fewer	About same	More

Thank you very much for taking the time to complete this survey. Please return the survey in the envelope provided. Each respondent will automatically receive a summary report of the results of the survey.

Name	
Title	
Institution	
Address	
City, State, Zip	

April, 1994

Your name and address are needed only for the purpose of sending you a copy of the final report. It will not in any way be associated with the information you provide in the questionnaire.

[1] The contents of the Enrollment Goals Survey are taken directly from the Fall 1992 National Enrollment Management Survey Report (Williams Crockett, 1993). Used with permission, March, 1994.

INSTITUTIONS IN FINAL SAMPLE

Agnes Scott College, Decatur, GA

Albertson College of Idaho, Caldwell, ID

Alma College, Alma, MI

Austin College, Sherman, TX

Beaver College, Glenside, PA

Belhaven College, Jackson, MS

Blackburn College, Carlinville, IL

Bloomfield College, Bloomfield, IL

Buena Vista College, Storm Lake, IA

Carroll College, Waukesha, WI

Centre College, Danville, KY

Coe College, Cedar Rapids, IA

Davidson College, Davidson, NC

Davis & Elkins College, Elkins, WV

University of Dubuque, Dubuque, IA

Eckerd College, St. Petersburg, FL

Hampden-Sydney College, VA

Hastings College, Hastings, NE

Illinois College, Jacksonville, IL

Johnson C. Smith University, Charlotte, NC

King College, Bristol, TN

Knoxville College, Knoxville, TN

Lafayette College, Easton, PA

Lake Forest College, Lake Forest, IL

Lees College, Jackson, KY

Lees-McRae College, Banner Elk, NC

Linderwood College, St. Charles, MO

Lyon College, (formerly Arkansas College), Batesville, AR

Macalester College, St. Paul, MN

Mary Baldwin College, Staunton, VA

Mary Holmes College, West Point, MS

Maryville College, Maryville, TN

Millikin University, Decatur, IL

Missouri Valley College, Marshall, MO

Monmouth College, Monmouth, IL

Montreat-Anderson College,Montreat,NC

Muskingum College, New Concord,OH

University of the Ozarks, Clarksville, AR

Peace College, Raleigh, NC

Pikeville College, Pikeville, KY

Presbyterian College, Clinton, SC

Queens College, Charlotte, NC

Schreiner College, Kerrville, TX

Sterling College, Sterling, KS

Stillman College, Tuscaloosa, AL

Trinity University, San Antonio, TX

University of Tulsa, Tulsa, OK

Tusculum College, Greenville, TN

Warren Wilson College, Asheville, NC

Waynesburg College, Waynesburg, PA

Westminster College, Fulton, MO

Westminster College,New Wilmington,PA

Westminster College of Salt Lake City,UT

Wilson College, Chambersburg, PA

College of Wooster, Wooster, OH

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